



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/945,094	08/30/2001	Xuemei Zhang	10992481-1	3160

7590 09/09/2004  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER
----------

TRAN, NHAN T

ART UNIT	PAPER NUMBER
----------	--------------

2615

11

DATE MAILED: 09/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/945,094

Applicant(s)

ZHANG, XUEMEI

Examiner

Nhan T. Tran

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5, 7-10, 14 and 18-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 14, 18, 20, 21 and 23-25 is/are rejected.
- 7) ☒ Claim(s) 5, 7-10, 19, 22 and 26-29 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 2615

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/28/2004 has been entered.

### *Response to Arguments*

2. Applicant's arguments with respect to independent claims 1, 18, 21 and dependent claims 24-25 have been considered but are moot in view of the new ground of rejection.

### *Claim Objections*

3. Claim 5 is objected to because of the claim recites the limitations “**the fixed values  $A_{K(\text{noise})}$  and  $A_{L(\text{noise})}$** ...” There is insufficient antecedent basis for this limitation in the claim. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3, 14, 18, 20, 21, 23-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Bhaskar (US 6,393,148).

Regarding claim 1, Bhaskar discloses a method of processing a pixel of a digital image, the method comprising:

applying a tone mapping function to a first color channel (luminance channel) of the pixel, the first color channel most closely matching relative luminance response of the human visual system (col. 4, lines 31-41; wherein factors are applied to all channels including luminance channel to adjust tone levels); computing scale factors (*modified stretch factors*) for other channels of the pixels according to fixed offset values (*predefined modifier factors* that are fixed within 0.05 - 0.001) and a change in value of the first color channel, the fixed values offsetting the effect of noise in calculating the scale factors (col. 4, lines 44-45 and col. 5, lines

Art Unit: 2615

35-45, 55-60); and applying the scale factors to the other color channels of the pixel (col. 6, lines 51-56).

Regarding claim 2, it is also seen that the color channels of RGB correspond to a positive linear color space since the R, G and B colors are visible colors in a positive linear space.

Regarding claim 3, it is inherent that the fixed values are a triplet of numbers proportional to a white point of a color space of the channels (see col. 5, lines 42-45) since the white point is a reference point of a color space in that any compensated noise value to the channels of the color space must be proportional to the white reference point.

Regarding claim 18, see the analysis of claim 1. In addition, a processor for processing the method in claim 1 is also disclosed (col. 5, lines 25-28), and the noise balancing terms are presented by the fixed offset values (*predefined modifier factors*).

Regarding claim 21, see the analysis of claims 1 & 18. Note that Figs. 4A-C clearly show a software program to be executed by the processor, wherein a memory for storing the program is inherent for the system to function as disclosed.

Regarding claims 20 & 23, see the analysis of claim 3.

Art Unit: 2615

Regarding claim 14, Bhaskar also discloses that the pixels are processed independently, whereby a scale factor is specific to each pixel (col. 4, lines 35-38).

Regarding claims 24 & 25, also disclosed as analyzed in claim 14, wherein the noise balancing terms (the fixed values) are the same for all pixels since they are included in the stretch factors that are used to process all pixels.

### *Allowable Subject Matter*

5. Claims 5, 7-10, 19, 22, 26-29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. *It is noted that claim 5 must be also rewritten to overcome the objection in section 3.*

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 5, 19 & 22, the prior art of record fails to teach or fairly suggest the limitations required in each of the claims, specifically:

$$A'_k = (A_K + A_{K(\text{noise})}) / (A_L + A_{L(\text{noise})}) \times A'_L ,$$

where  $A_{K(\text{noise})}$  and  $A_{L(\text{noise})}$  are small positive numbers representing the fixed values (or the noise balancing terms),  $A_L$  represents the first color channel, and  $A_K$  represents the other channels.

Art Unit: 2615

Regarding claims 7, 26 & 28, the prior art of record also fails to teach or fairly suggest the limitations required in each of the claims, specifically:

$$Y' = TM(Y);$$

$$X' = (X + X_{\text{noise}}) / (Y + Y_{\text{noise}}) \times Y ;$$

$$Z' = (Z + Z_{\text{noise}}) / (Y + Y_{\text{noise}}) \times Y',$$

where  $X_{\text{noise}}$ ,  $Y_{\text{noise}}$ ,  $Z_{\text{noise}}$  are noise balancing terms added to CIE trismulus color channels XYZ.

Regarding claim 8, the claim is objected as being dependent of claim 7.

Regarding claims 9, 27 & 29, the prior art of record also fails to teach or fairly suggest the limitations required in each of the claims, specifically:

transforming the R value of each pixel according to  $R' = (R + R_{\text{noise}}) / (G + G_{\text{noise}}) \times G'$ ;

and

transforming the B value of each pixel according to  $B' = (B + B_{\text{noise}}) / (G + G_{\text{noise}}) \times G'$ ,

where  $R_{\text{noise}}$ ,  $G_{\text{noise}}$ ,  $B_{\text{noise}}$  are the fixed values (or the noise balancing terms).

Regarding claim 10, the claim is objected as being dependent of claim 9.

### ***Conclusion***

Art Unit: 2615

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nhan T. Tran whose telephone number is (703) 605-4246. The examiner can normally be reached on Monday - Thursday, 8:00am - 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew B Christensen can be reached on (703) 308-9644. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NT.



**ANDREW CHRISTENSEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**